

- 80 -

ABSTRACT

A vehicular atmosphere cleansing system utilizes a regenerative wheel having flow channels extending through the wheel coated with an adsorbant. An atmosphere stream passes through a first position dependent portion of the wheel where VOC's including HC's are adsorbed while a heated atmosphere stream passes through a second position dependent regenerative portion of the wheel whereat VOC's are desorbed. The adsorbant is activated carbon having particles of micropore size adhered to the substrate by a silicone binder producing high adsorption efficiencies while withstanding relatively high regenerative heat temperatures resulting from exhaust gas sensible heat. A hydrocarbon senses HC in the desorbed heated atmosphere stream to rotatively and sequentially index pie shaped, segmented portions of the wheel into the wheel's regenerative region while also functioning as the main component of an OBD device for the system.